PATENT 4 36 04

Expedited Procedure
After Final Response
Under 37 CR 1.116

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Communication	Devices And Metl	hods Therefor"			
Title:	"Reselection	Optimization	in M	Iobile	Wireless
Filed:	13 February 200)2)	,		
Confirm. No.	6905)	Atty. Dock	et No. (S20456RL
Confirm NI	600E	.)	Art Unit 26	82	
Appl. No.	10/074,970)	Examiner	L. We	st
Applicant:	BRANDT ET AI	L.)	T7	T 74.	

BRIEF UNDER 37 C.F.R. § 1.192

Assistant Commissioner for Patents Alexandria, Virginia 22313

Sir:

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Real Party In Interest

The real party in interest is Motorola Inc., by virtue of an assignment duly executed by the named inventor(s) and recorded in the Patent Office on 28 March 2002, REEL/FRAME 012741/0374.



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Related Appeals and Interferences

There are no related appeals or interferences.

Status of Claims

Claims 1-20 are pending and are the subject of the instant appeal.

A copy of the appealed claims in appended.

Status of Amendments

No claim amendments have been submitted subsequent to the mailing of the final Office Action on 14 January 2004.

Summary of Disclosure

In one embodiment, the inventions are drawn generally to methods in mobile wireless communication devices, including performing present signal measurements while receiving present paging information, and performing present reselection processing on prior signal measurements while performing present signal measurements. The prior signal measurements are performed or obtained while receiving prior paging information during an earlier paging period before receiving the present paging information. The paging information is transmitted over some periodic interval depending upon the specification of the particular communication standard. In another embodiment, power consumption of the wireless device is reduced by



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performing the reselection processing on prior signal measurements obtained or performed while receiving the prior paging information. These and other aspects of the invention are discussed more fully page 1, line 16 – page 8, line 19 of the instant specification and are illustrated in the FIGS. 1-4.

Issues for Consideration on Appeal

- 1. Whether Claims 1-14 are anticipated under 35 USC 102(e) by U.S. Patent No. 6,278,703 (Nuefeld).
- 2. Whether Claims 15-20 are unpatentable over U.S. Patent No. 6,278,703 (Nuefeld) in view of U.S. Patent No. 6,480,504 (Wang) under 35 USC 103(a).

Grouping of Claims

The Claims do not stand or fall together regarding the rejections thereof. The bases for the patentability of the claims is discussed further below.

Discussion Of Issue 1

Rejection Summary

Claims 1-14 stand rejected under 35 USC 102(e) as being anticipated by U.S. Patent No. 6,278,703 (Nuefeld). Office Action, 14 January 2004. The Examiner maintains the rejection stated in the Office Action of 9 July



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2003, para. 2. The Examiner takes the position that Nuefeld performs present processing using prior signal measurements.

Summary of Nuefeld

Nuefeld discloses improving handoff performance by increasing the number of active and neighbor signal searches performed during active RF power periods. Nuefeld defers processing of some or all signal search results until after the RF power period has ended to provide additional processing resources required for performing the increased number of signal searches. Nuefeld, col. 5, line 61 - col. 6, line 8; col. 7, line 3; and col. 8, lines 17-26. This is also illustrated graphically in Nuefeld by comparison of FIGS. 4 and 6A, wherein elimination of the signal-processing ("CPU") interval from each period of FIG. 4 permits additional neighbor signal acquisitions, as illustrated in FIG 6A.

Discussion of Patentability of Independent Claim 1

Regarding Claim 1, contrary to the Examiner's assertion, Nuefeld does not disclose a method in a mobile wireless communication device, comprising

receiving present paging information;

performing present signal measurements while receiving the present paging information;

performing present reselection processing on prior signal measurements while performing present signal measurements.



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Claim 1 covers the general concept of obtaining signal measurements while performing signal processing. In exemplary FIG. 4 of the instant patent application, reselection processing during a particular power period is based on signal measurements made during an earlier RF power period, e.g., the processing of signal measurements lags the RF power period during which the measurements were made. Thus in some embodiments of the invention, at least some reselection processing (of prior signal measurements) occurs while performing present signal measurements, i.e., while the radio is energized.

The "prior signal measurements" of Claim 1 are not the same as the "present signal measurements", which are defined as those measurements made while receiving "present paging information". The "prior signal measurements" cannot be measurements obtained while receiving the "present paging information". This logical interpretation of Claim 1 is consistent with the instant disclosure, which teaches that the prior signal measurements are those measurements made or obtained while receiving prior paging information as disclosed on page 6, line 20 – page 7, line 12 of the instant specification.

Nuefeld defers processing of some or all neighbor signal measurements until after the RF power period has ended. In Nuefeld, any processing performed during the RF power period is performed on active signal measurements made during the RF power period, i.e. while receiving present paging information. There is no disclosure or suggestion in Nuefeld to process "... prior signal measurements while performing present signal measurements", since by definition the "prior signal measurements" cannot be measurements obtained while "... receiving present paging information."



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The passage of Nuefeld referenced by the Examiner discusses the reduction of processor overhead by eliminating context switching, i.e., the switching of data associated with different processing tasks in and out of processor memory, e.g., registers, cache, etc., by performing any signal processing after completion of the paging task or by using a DMA controller. Nuefeld, col. 7, lines 23-58. Nuefeld also discloses increasing the number of neighbor signal searches during the RF power period by reducing (based on multi-path delay time information) the search window for each signal.

Claim 1 and the claims that depend therefrom are thus patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 2

Regarding Claim 2, contrary to the Examiner's assertion, Nuefeld does not disclose

... performing the prior signal measurements while receiving prior paging information before receiving the present paging information

in combination with the limitations of Claim 1. In Claims 1 & 2, current processing is performed on prior signal measurements obtained while receiving prior paging information, i.e., during a prior measurement period. Claims 1 and 2 cover the process exemplified in FIG. 2 wherein measurements made at (230) are processed at (252) while new measurements are made at (240). Claim 2 is thus further patentably distinguished over Nuefeld.



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Discussion of Patentability of Claim 3

Regarding Claim 3, contrary to the Examiner's assertion, Nuefeld does not disclose

... reducing power consumption by performing the present reselection processing on the prior signal measurements while receiving the present paging information, performing the prior signal measurements while receiving prior paging information before receiving the present paging information"

in combination with the limitations of Claim 1 and any intervening claims. Nuefeld does not perform reselection processing on prior signal measurements obtained while receiving prior paging information. Claim 3 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 4

Regarding Claim 4, contrary to the Examiner's assertion, Nuefeld does not disclose

... reducing power consumption by performing the present reselection processing, based upon the prior signal measurements, and receiving the present paging information in a substantially overlapping time period

in combination with the limitations of Claim 1 and any intervening claims. Claim 4 is thus further patentably distinguished over Nuefeld.



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Discussion of Patentability of Claim 5

Regarding Claim 5, contrary to the Examiner's assertion, Nuefeld does not disclose

... entering a minimal power consumption mode while not receiving paging information and not performing signal measurements and not performing reselection processing

in combination with the limitations of Claim 1. Nuefeld discloses that at least some of the signal processing occurs after the RF power period (when not performing signal measurements), and thus Nuefeld cannot enter minimal power consumption mode while not performing signal measurements. Claim 5 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 6

Regarding Claim 6, contrary to the Examiner's assertion, Nuefeld does not disclose

... maximizing minimal power consumption mode operation by performing the reselection processing while substantially concurrently receiving the paging information

in combination with the limitations of Claim 1 and any intervening claims. Nuefeld discloses the performance of signal processing after performing signal measurements, and thus Nuefeld cannot enter minimal power consumption



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mode while not performing signal measurements. Claim 6 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 7

Regarding Claim 7, contrary to the Examiner's assertion, Nuefeld does not disclose

... receiving present paging information, performing present signal measurements, and performing reselection processing while operating the wireless communication device in idle mode

in combination with the limitations of Claim 1 and any intervening claims. Claim 7 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Independent Claim 8

Regarding Claim 8, contrary to the Examiner's assertion, Nuefeld does not disclose a "... method in a mobile wireless communication device that receives paging information and performs neighbor signal measurements, comprising"

receiving present paging information;

performing present signal measurements while receiving the present paging information;

performing reselection processing while receiving present paging information;

reducing power consumption by performing the reselection processing on prior signal measurements performed while receiving prior paging information.



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As noted above, Nuefeld discloses processing signal search results (neighbor cell signal measurements) after the RF power period has ended to conserve processing resoures. Nuefeld, col. 6, lines 50-54, col. 8, lines 17-40. Nuefeld performs only limited processing during the RF period to the extent permitted by excess processing power. Nuefeld contends that any increase in power consumption will be offset by power savings resulting from the avoidance of link maintenance conditions (RF activation for the sole purpose of obtaining signal measurements). Nuefeld, col. 8, lines 51-57. Further, in Nuefeld, any processing performed during the RF power period is performed on active signal measurements made during the present RF power period, i.e. while receiving present paging information. Thus Neufeld teaches away from "... reducing power consumption by performing the reselection processing on prior signal measurements performed while receiving prior paging information." Claim 8 and the claims that depend therefrom are thus patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 9

Regarding Claim 9, contrary to the Examiner's assertion, Nuefeld does not disclose

... entering a minimal power consumption mode when not receiving paging information and not performing signal measurements and not performing reselection processing

in combination with the limitations of Claim 8. Nuefeld discloses the performance of signal processing after the RF power period during which

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BRANDT ET AL.

"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

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signal measurements are made has ended, and thus Nuefeld does not and cannot enter minimal power consumption mode while not performing signal measurements. Claim 9 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 10

Regarding Claim 10, contrary to the Examiner's assertion, Nuefeld does not disclose

... maximizing minimal power consumption mode operation by performing the reselection processing while substantially concurrently receiving the paging information

in combination with the limitations of Claim 8. Nuefeld discloses the performance of signal processing after the RF power period has ended, and thus Nuefeld cannot meet the limitations of Claim 10. Claim 10 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 11

Regarding Claim 11, contrary to the Examiner's assertion, Nuefeld does not disclose

... receiving present paging information, performing present signal measurements, and performing reselection processing while operating the wireless communication device in idle mode



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in combination with the limitations of Claim 8 and any intervening claims. Claim 11 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Independent Claim 12

Regarding Claim 12, contrary to the Examiner's assertion, Nuefeld does not disclose a

... method in a wireless communication device, comprising:
receiving periodic paging information;
performing periodic signal measurements;
performing periodic reselection processing;
reducing power consumption by receiving at least a portion
of the periodic paging information concurrently with performing
at least a portion of the periodic signal measurements and
performing at least a portion of the periodic reselection
processing.

Nuefeld does not and cannot meet the "concurrently" limitations of Claim 12, since Nuefeld performs signal processing after the RF power period, i.e., after the obtaining signal measurements. Claim 12 is thus patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 13

Regarding Claim 13, contrary to the Examiner's assertion, Nuefeld does not disclose

... performing present reselection processing on prior signal measurements while performing present signal measurements

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in combination with the limitations of Claim 12. As noted, Nuefeld does not perform reselection processing on prior signal measurements at the same time present signal measurements are obtained. Claim 13 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 14

Regarding Claim 14, contrary to the Examiner's assertion, Nuefeld does not disclose

... operating in a minimal power consumption mode when not receiving periodic paging information and not performing periodic signal measurements and not performing periodic reselection processing

in combination with the limitations of Claim 12. Nuefeld discloses the performance of signal processing after the RF power period during which signal measurements are obtained, and thus Nuefeld cannot enter minimal power consumption mode while not performing signal measurements. Claim 14 is thus further patentably distinguished over Nuefeld.

Discussion of Issue 2

Claims 15-20 stand rejected under 35 USC 103(a) as being unpatentable over Nuefeld in view of U.S. Patent No. 6,480,504 (Wang).



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Official Action, 9 July 2003, para. 4. The Examiner relies upon Wang for teaching the TDMA limitations.

Discussion of Patentability of Independent Claim 15

Regarding Claim 15, contrary to the Examiner's assertion, Nuefeld does not disclose a

> ... method in a TDMA wireless communication device that receives periodic paging blocks and performs periodic neighbor signal measurements, comprising:

receiving a present paging block;

performing present neighbor cell signal strength measurements while receiving the present paging block;

performing reselection processing for prior neighbor cell signal strength measurements while receiving the present paging block and performing the present neighbor cell signal strength measurements.

Nuefeld defers processing of some or all neighbor signal measurements until after the RF power period has ended. In Claim 15, "prior neighbor cell signal strength measurements" are processed while receiving present paging information, i.e., during the present RF power period. Only "...present neighbor cell signal strength measurements ..." are obtained during the present paging block. The "... prior neighbor cell signal strength measurements..." are obtained during a prior paging block. Nuefeld performs processing on present signal measurements after the RF power period has ended. Wang is not relied upon only to meet the TDMA limitations. Claim 15 and the claims that depend therefrom are thus patentably distinguished over Nuefeld and Wang.



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Discussion of Patentability of Claim 16

Regarding Claim 16, contrary to the Examiner's assertion, Nuefeld does not disclose

... reducing power consumption by operating in a minimal power consumption mode when not receiving periodic paging blocks and not performing periodic neighbor cell signal strength measurements and not performing reselection processing

in combination with the limitations of Claim 15. Nuefeld does not perform reselection processing on prior signal measurements while obtaining present signal measurements. Claim 16 is thus further patentably distinguished over Nuefeld and Wang.

Discussion of Patentability of Claim 17

Regarding Claim 17, contrary to the Examiner's assertion, Nuefeld does not disclose

... reducing power consumption by receiving at least a portion of the periodic paging blocks, performing at least a portion of the periodic neighbor cell signal strength measurements, and performing at least a portion of the reselection processing concurrently

in combination with the limitations of Claim 15 and any intervening claims. Nuefeld does not perform reselection processing while obtaining present signal measurements. Nuefeld processes the signal measurements after

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obtaining the signal measurements. Claim 17 is thus further patentably distinguished over Nuefeld and Wang.

Discussion of Patentability of Independent Claim 18

Regarding Claim 18, contrary to the Examiner's assertion, Nuefeld does not disclose a

... method in a WCDMA wireless communication device that receives periodic paging indicator channel blocks and performs periodic reselection processing, comprising:

... receiving a present paging indicator channel block;

performing present signal measurements while receiving the present paging indicator channel block;

performing reselection processing for prior signal measurements while receiving the present paging indicator channel block and performing the present signal measurements.

Nuefeld defers processing of some or all neighbor signal measurements until after the RF power period has ended. In Claim 18, only "... present signal measurements [are obtained] while receiving the present paging indicator channel block...." The "... prior signal measurements..." processed while receiving present paging information are obtained while receiving a prior paging block. Claim 18 and the claims that depend therefrom are thus patentably distinguished over Nuefeld and Wang.

Discussion of Patentability of Claim 19



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Regarding Claim 19, contrary to the Examiner's assertion, Nuefeld does not disclose

... reducing power consumption by operating in a minimal power consumption mode when not receiving periodic paging indicator blocks and when not performing periodic signal measurements and not performing reselection processing

in combination with the limitations of Claim 19. Nuefeld does not perform reselection processing on prior signal measurements while obtaining present signal measurements. Claim 19 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 20

Regarding Claim 20, contrary to the Examiner's assertion, Nuefeld does not disclose

... performing signal measurements between receiving periodic paging indicator blocks when the period between the periodic paging indicator blocks is greater than a predetermined period

in combination with the limitations of Claim 15 and any intervening claims. Nuefeld does not perform reselection processing while obtaining present signal measurements. Claim 20 is thus further patentably distinguished over Nuefeld.



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Prayer for Relief

Kindly reverse and vacate the rejection of Claims in view of the discussion above, with instructions for the Examiner to allow said Claims to issue in a United States Patent without further delay.

Respectfully submitted,

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13 Apr. 2004

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APPENDIX CLAIMS PENDING ON APPEAL

1. (Original) A method in a mobile wireless communication device, comprising:

receiving present paging information;

performing present signal measurements while receiving the present paging information;

performing present reselection processing on prior signal measurements while performing present signal measurements.

- 2. (Previously Presented) The method of Claim 1, performing-prior signal measurements while receiving prior paging information before receiving the present paging information.
- 3. (Previously Presented) The method of Claim 1, reducing power consumption by performing the present reselection processing on the prior signal measurements while receiving the present paging information, performing prior signal measurements while receiving prior paging information before receiving the present paging information.
- 4. (Original) The method of Claim 1, reducing power consumption by performing the present reselection processing, based upon the prior signal



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measurements, and receiving the present paging information in a substantially overlapping time period.

- 5. (Original) The method of Claim 1, entering a minimal power consumption mode while not receiving paging information and not performing signal measurements and not performing reselection processing.
- 6. (Original) The method of Claim 5, maximizing minimal power consumption mode operation by performing the reselection processing while substantially concurrently receiving the paging information.
- 7. (Original) The method of Claim 1, receiving present paging information, performing present signal measurements, and performing reselection processing while operating the wireless communication device in idle mode.
- 8. (Original) A method in a mobile wireless communication device that receives paging information and performs neighbor signal measurements, comprising:

receiving present paging information;

performing present signal measurements while receiving the present paging information;



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performing reselection processing while receiving present paging information;

reducing power consumption by performing the reselection processing on prior signal measurements performed while receiving prior paging information.

- 9. (Original) The method of Claim 8, entering a minimal power consumption mode when not receiving paging information and not performing signal measurements and not performing reselection processing.
- 10. (Original) The method of Claim 8, maximizing minimal power consumption mode operation by performing the reselection processing while substantially concurrently receiving the paging information.
- 11. (Original) The method of Claim 8, receiving present paging information, performing present signal measurements, and performing reselection processing while operating the wireless communication device in idle mode.
- 12. (Original) A method in a wireless communication device, comprising:

receiving periodic paging information;



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performing periodic signal measurements; performing periodic reselection processing;

reducing power consumption by receiving at least a portion of the periodic paging information concurrently with performing at least a portion of the periodic signal measurements and performing at least a portion of the periodic reselection processing.

- 13. (Original) The method of Claim 12, performing present reselection processing on prior signal measurements while performing present signal measurements.
- 14. (Original) The method of Claim 12, operating in a minimal power consumption mode when not receiving periodic paging information and not performing periodic signal measurements and not performing periodic reselection processing.
- 15. (Original) A method in a TDMA wireless communication device that receives periodic paging blocks and performs periodic neighbor signal measurements, comprising:

receiving a present paging block;

performing present neighbor cell signal strength measurements while receiving the present paging block;



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performing reselection processing for prior neighbor cell signal strength measurements while receiving the present paging block and performing the present neighbor cell signal strength measurements.

- 16. (Original) The method of Claim 15, reducing power consumption by operating in a minimal power consumption mode when not receiving periodic paging blocks and not performing periodic neighbor cell signal strength measurements and not performing reselection processing.
- 17. (Original) The method of Claim 15, reducing power consumption by receiving at least a portion of the periodic paging blocks, performing at least a portion of the periodic neighbor cell signal strength measurements, and performing at least a portion of the reselection processing concurrently.
- 18. (Original) A method in a WCDMA wireless communication device that receives periodic paging indicator channel blocks and performs periodic reselection processing, comprising:

receiving a present paging indicator channel block;

performing present signal measurements while receiving the present paging indicator channel block;



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performing reselection processing for prior signal measurements while receiving the present paging indicator channel block and performing the present signal measurements.

- 19. (Original) The method of Claim 18, reducing power consumption by operating in a minimal power consumption mode when not receiving periodic paging indicator blocks and when not performing periodic signal measurements and not performing reselection processing.
- 20. (Original) The method of Claim 18, performing signal measurements between receiving periodic paging indicator blocks when the period between the periodic paging indicator blocks is greater than a predetermined period.